INTERVIEW WITH BILL LEA INTERVIEWED BY SARAH KIDD MSFC AUGUST 12, 1992

K: I'm talking with Bill Lea here in Huntsville. Mr Lea, the first question is how you got involved in the space business and how you came to be here at Marshall?

L: I got out of college in June 1963 and came to work at Marshall right after that, June 17, 1963. I went to work in the Saturn systems office which is the old Saturn, what turned in to be Saturn V after that, and I was working in their program control resources area. I had worked at Marshall for three months, and then I went off to the military for two years and came back in September 1965 and went to work in the Engine Program Office. I worked in the J-2 Engine Project Office in their Configuration Management area. From there, I worked in their R&D area for, I can't remember exactly how long, but for several years. Then I went to the army for a year.

K: You went back to the Army again?

L: No I went to the Army and worked as a civilian in the Safeguard Defense Command for a year in '68 or '69. I worked there one year and came back to Marshall over at the Skylab program office at Marshall. I worked as their Program Control in Skylab for the Air Lock Module when I came back. When Skylab was closed down, I served as the Program Control Manager for the closing out of the Skylab program. Then I moved to HEAO project office and served as a mission manager for a year and a half. Then I went to work on the Executive Staff for two years as a Special Assistant to Associate Director of Management. From there I went to Program Development and spent several years in Program Development

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working on the 25KW Power System and Space Platform project that we were hoping to be the power platform to be used on Space Station. As Space Platform and Power System went away, I became a member in the Space Station Project Office. I worked in the Space Station Projects Office through the Phase Bs and through the initiation of the phase C,D contract with Boeing. From there I went to the IUS, Upper Stages Projects office and worked as the Program Control Manager of IUS Toss Projects Office. I spent a couple of years there, and I came over here in April 1990. I've been in this job as R&D Program Manager in the Comptroller's Office since April 1990 until the present.

K: The 25KW module, that project no longer exists?

L: No longer exists. That could have evolved into a Space Station where it could have been a satellite and attach a pallet to it and attach a manned module to it. It was about a \$400 Million program, and then they turned it down. Station came along, so NASA decided they wouldn't go into that, and they'd pull up Space Station activities.

K: When you went from Saturn to Skylab, how was it different going from a propulsion system into Skylab? What were the differences you saw?

L: The area I worked in Skylab was the Air-Lock Module which was a pressurized module which linked the Workshop to the ATM. The ATM attached to it and the orbital workshop attached to the air-lock. I was in the program control areas. You just had a different set of contractors. We had a major contract with McDonnell/Douglas Eastern Division in St. Louis. Of course the Orbital Workshop

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was contracted with McDonnel/Douglas Western Division in California. There were different contractors, but I still had the budget configuration management responsibilities on both program programs. You still had the same responsibilities as far as budget planning and forecasting, tracking and analysis, but as far as the technical area, I wasn't involved in that a great deal. The functions were different, but the activities were the same. I worked for the same manager in the Engine office that I worked for in Skylab, because he worked in Skylab.

K: So transition-wise, it was very easy

L: ... very easy because the engine people went there from Skylab, a lot of the Engine Program Office. Leland Belew went to the Skylab program from the engine office. My boss, Bud Drumman, went from the J-2 engine to the Air Lock MDA Project Office on Skylab. When Skylab first started, that's when from the Engine office I was supposed to go to Skylab, but I took a year's absence, went over to the Army and worked for a year. Then I came back here and went to work in the same office that I left here a year later.

K: How would you characterize your relationship with Johnson particularly during the transitional phase from Saturn to Skylab?

L: In Skylab, you recognize that Marshall had the lead. Our program was an airlock, which was transferred before I got there, came from Johnson. Skylab was a changing program because if went from a wet-Skylab to a dry-Skylab. That's what caused the cost to increase drastically. There was always, in the old days, everybody was looking for everybody else's business in some of those respects. There was

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always the challenge of who got the roles and missions and responsibilities. That was always up in most of the people's minds.

K: Would you say there was a kind of competitiveness?

L: There was a competitiveness with it, but once the missions were? they worked together pretty well.

K: Has the working together relationship between Marshall and Johnson continued?

L: I think they work pretty well together at the technical and interphase areas. I think our shuttle activities with them are working pretty well, interface since JSC is the lead in the shuttle area. I don't see that there's that much competitive looking as there used to be fifteen to twenty years ago.

K: Since you've been here, have you seen management make decisions differently? How has the role in management changed?

L: I believe the managers today have more lee-way and latitude in making the decisions than they did in years past. They feel that there is more responsibility for their programs and that they have more lee-way in order to make decisions that affect resources and man power than they did twenty years ago. I think that's inheritant in the people. I sense that, I don't know whether it's true of not, but I think they do.

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K: In the projects you've worked on, you've worked with the funding moreso than with the technical area?

L: Yes. When I was in Station, I was the technical assistant to the manager and I was the contracting officer or representative for two phase Bs with McDonnell/Douglas and Boeing. I had all the contractual responsibility and I was not the program control manager in Station.

K: Does Marshall contract out a lot? They seemed to do a lot more things in-house than they do now. Is that pretty much an accurate statement?

L: Marshall's taking on more projects in-house now than in the last year or two. In a lot of years past, there were a lot more civil service people here. You had six or eight thousand civil service in the early years of NASA here at Marshall and you're into thirty-five hundred or so now, so you've got a lot less civil service manpower than you had in the 60s, considerably less, about half of the size. There's a lot of inhouse activity and some small experiments in our space science laboratory, and we have some other research in the other labs, but there's not a lot of experiment development going on, in-house development. There's some, but it's limited.

K: Back in the Saturn era, it was done more in-house right? It seems they have had a shift almost from Saturn with in-house then they contracted out a lot. Are they coming back?

L: When I first came here, they were building the Saturn here, but it was about on the way out. I can't even remember that one for sure. I remember going over and

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looking at some of the Saturns as they were being built, one of them anyway. We don't have any type of magnitude of the technicians and all that could take that job and do it with the present work force that we have. No way we could take that job.

K: Do you see that as a positive or negative aspect?

L: I think the average engineer likes to be hands-on activities. When you take a lot of that out of him, he looses some of his, not interest, but some of his added vigorous activities or whatever you want to call it. I think the young engineers more particularly want to do the hands-on work. We're trying to get some hands-on activities at the Center right now. I think we will, and you'll see more of that. But you just don't have the manpower to put on a program if its going to be very long. You just don't have the civil service people to allocate to that with the diversity of the center - all the different and many programs we work in. In the Saturn when you had that big program, you really only dealt with one large big program. It's not like is today when you've got Spacelab, AXAF, Shuttle, LS trying to get started, and those type things. You really had the whole center concentrating on Saturn.

K: It makes it easier if you only have the one project the entire center is involved with as opposed to now when you're so diversified.

L: That was a huge program and when you really look at it, that was major activity for most of the center. Our Agency didn't have a lot of big programs at that time in the early days. Everybody was concentrating on getting to the moon.

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K: In trying to get funding for the various projects you have worked on, were there some that were easier to find money for, some more difficult, and what problems did you have?

L: The big problem that you get in to in looking for funding and all in these programs is if you're in a program that's a new program. It requires all new money, so everybody's interesting in maintaining the current programs that they have so you have to be trying to look at ways to lower the existing programs - like lower the operational cost of the shuttle. That's a major goal of NASA, to get the operating cost of Shuttle down. We have to do that in order to make room for NASA to be able to start new programs. Naturally, if a program is underway and approved by Congress, the funds come a little better. Station may be an example of one that's been very difficult to get funds for two or three years since it's been to Congress for two years in a row and gone to the floor trying to delete Station from the budget. That's the one you that still continually think it would be over by now. Golden says it is, and we hope it is.

K: Do you think it's going to work out for Station?

L: I think Station will stay and keep viable and going. If the funding comes the way it did this year, it may be delayed a little bit.

K: But eventually you think

L: Eventually, I think Station will fly.

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K: Have there been any projects that were discontinued because of funds that you think shouldn't have?

L: The only two that have been discontinued is the AFE program and the OMV and I wasn't on those programs, but I saw them from the outside. If there are no great roles in missions for the particular payload or particular vehicle, then you need to examen whether you need to develop it. That's what happened in OMV. AFY was just under a shortage of funds.

K: What were those again?

L: OMV - Orbital Maneuvering Vehicle I believe was the name of it. AFE - Aeroflight Experiment I believe, whatever it is. Those two that have been stopped in the last couple of years. It's not that people wouldn't have liked to have had them, they just think it's under the tight money situation that they have to set the priorities and they weren't high enough on the list.

K: You must have handled tremendous amounts of money that came through here. How difficult is it to try and balance out funds for one area as opposed to funds for another? Let me ask this question first. With each person in charge of funding for a project, there is the same person for another project?

L: Yes, basically.

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K: I'm wondering how difficult it would be or the relationship between the various funding officers in each program. What is the relationship between say you and someone on another project?

L: I don't have any particularly now, but in the past when you were there, you were issued guidelines from Headquarters, from cost guidelines and NOA guidelines and they were for your program, new obligation authority is NOA and the cost guidelines. You were issued those for your program. You were told to do a certain set of requirements within those dollar numbers. Really you didn't feel like you were a great competitor for a whole lot of other funds except for Shuttle has a little flexibility because they all have one set of dollars to operate the Shuttle so they have to work all the major pieces of the Shuttle under that umbrella.

K: So Headquarters has pretty much already said you have this much money and . .

L: If you can't live within that then you must justify what caused your problem and why your requirements have gone up and what has made your dollars increase. Each budget exercise that goes on at the Center, each project or program, is given a set of cost and new obligation authority guidelines to try and build this scope with delivery dates and launch dates, Shuttle manifest if they're going on a shuttle or? to work within. Then the project will take their turns on splitting it out or whether they can use it for program support activity, have to use it on the prime contractor, and that's done between the program control people and the project managers based on where they think the money should go.

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K: Do you think the guidelines Headquarters sends down are reasonable or do you think sometimes they are pushing to get something accomplished for the set amount?

L: I think they're reasonable to the most extent. When they set you up some challenging targets they have on the shuttle and some challenging reductions over the next five years for operations as to whether the agency can accomplish those, I believe the Center is committed to accomplish their targets assignments. They're not going to be easy but I think their probable accomplishable. You see whey you're working with headquarters you're dealing with people and you know their interface and you keep them prized on what's going on so they don't try and come down with a number that they know is totally unreasonable. That's very important that you get a working relationship with your counterpart at headquarters or at another center if you're working through another center.

K: Has the relationship for funding between Marshall and Headquarters always been fairly positive or have there been times . . . ?

L: Well there are always when nobody believed they get their fare share of funds. There are always those times, but I think overall Marshall has gotten their fair share of funds on both programs. It's all in how well everybody communicates and works together. I think communication has improved in the last few years because of the managers being able to do more open, out with the headquarters and their counterpart.

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K: Was there a time when Marshall management and NASA headquarters did not have a great relationship in terms of finding money?

L: The working relationship between Headquarters and any center and Marshall was never as great as it was with Von Braun because he was just a motivator guy. I think that they've, we've always tried to do within the dollars that were there, the funding that was there. To say that we, there are always discussions that people think they're giving you more than you need and you don't feel you're getting your fair share but that's just the way the budget world is. Everybody wants more than they get is the general rule. I don't think there have been too many bad things that I can recall.

K: Just out of curiosity, when the Center was going through the Reductions in Force under Petrone, what was the atmosphere at Marshall?

L: Everyone was concerned that Mr. Petrone had come down to be the hatchet man to trim the Center back. I was naive enough not to worry about it because I was here during the big reductions in the mid-'60s which I had just come on in '63, had been off in the military for two years in '65 and they were over. I've seen the Center go from 6000 to 3500 so its a big cut. I think the stabilization of the force just got to improve the morale but there's always a constant when they were having them every year. It seemed like they came every year, and I don't remember exactly how many there were. You've probably got that data somewhere, but I don't have it. I don't remember, but there were quite a few of them. I think the work force now feels more confident in there stability than they did twenty years ago when we were going through that. Back in those days we were making that big transition of trying to

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contract out as much as possible to reduce the civil service because that was supposed to save a lot of money.

K: Do you think the same thing happened after Skylab? Was there a feeling of since the one project was over where we go from here or was shuttle . . . ?

L: The shuttle was already underway then. When Skylab was over there wasn't a question because Shuttle was underway. Most of the people that worked on Skylab moved into the shuttle program and worked on shuttle. That's a vague part of my time. I never worked on shuttle personally, for only about two months, and did not stay intimately involved with all the shuttle activities.

K: Getting back to what happened when Petrone was here, were you here when Petrone came?

L: I believe I was here. I don't remember when he was here but I was here when Petrone was here. I didn't have much interface with Petrone. He was only here what two years?

K: It wasn't very long.

L: Maybe a year or two, I don't remember. I had very little interface with him. I worked for John Potate which was his assistant after Petrone had gone so I didn't have much interface with Petrone. We just had that perspective over the center that he was here to trim it back.

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K: From the stuff I have looked at, of course my professors would know a lot more about this, it seems that there was a negative attitude towards him. I don't know very much about him in regards to personality or working relationship. Do you think the negative feeling towards him considering what he had to do is justifiable?

L: I don't know how to comment on that. We all had the perspective that when he came to the center that he was here to cut the center back in manpower and civil service and still not kill the center. He was sent down to realign the labs to a certain extent but in a new management terminology. I think he accomplished most of that. Most of the lab chiefs that were there at that time left during this period, best I remember. I'd have to go back and see who they were then, but he was the reshaping of the center.

K: How do you think Marshall management was under Lucas?

L: Under Dr. Lucas, he was very different from any of the two managers we've had. He was a very demanding center director and wanted to be kept informed of everything at the center. I think people were not as comfortable with him as they were with J. R. or they are with Jack. Whether there was a fear, I don't know. I thought maybe there was, but when I spent a year up there, I didn't see much fear from my perspective. I think there was always a constant don't ever take him a problem that you didn't have a solution. I think that was just a perspective people had.

K: Would they tend to go more to the assistant director or to the third or forth person in charge?

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L: No. I think most of them had to go to Lucas because he made most of the, to the best I can determine. I didn't deal a whole lot with Dr. Lucas at that time either, but I think he made a lot of the decisions. I'm not sure he utilized his deputies as much as he should have.

K: In your work, have you had to have a lot of one-on-one contact with the center director? How closely have you worked with Marshall managers?

L: I work a lot with Marshall managers. History? In older jobs?

K: Yes.

L: In the older jobs I was in when you were with a program, you worked day to day and hand in hand with your program manager. If we were in a project office, we would have a lot of interface with the program manager. For Skylab for instance, we were in the Air-Lock Project Office so we dealt with the project manager on a day to day basis and then we held several meetings with the program manager. Then we went on up from there a lot of the activity was between program managers and program managers. There was not a lot of one on one necessarily with the program control people. Control people deal a lot with the comptrollers, budget people here and budget people at headquarters and deal a lot with the center directors and the routine reviews that are held with the center director. I don't think many of them deal one on one with the center director. The program manager is there with them.

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K: There seems to be so many people involved in each different aspect of a specific project or program. Is it easy working with that many people? Is it an advantage or a hindrance?

L: I'm not sure I understand the question. Looking from what level to what level?

K: Say if you had a question or had to make a decision, how many different people would you have to contact to be in on it?

L: It would depend on what the effect is. If it's something that may affect the whole center, then we'd feel like I would have to go talk to Mr. ? and then he would determine whether we needed to tell Jack or Wayne, Dr. Little. Things that affect day to day things, I feel comfortable making those decisions myself. If it's things that may impact across several program, or one program, we just inform them all on what we're going to do. It's all on what kind of decision you've got to make. Just the people you control, then you can make that decision pretty well.

K: If it's a big decision that affects the entire center, is the decision-making process fairly efficient? That's the word I was looking for.

L: I think it is if it's a decision the center director has to make and everyone understands it and it needs to be made fairly rapidly, I think Jack, if they need his involvement, that he makes himself available to help in making that decision to provide the proper guidance to those people on how he looks at it from the other perspective. A lot of managers that look at the work in their area, they keep abreast of what happens in the others, but they're not necessarily, the shuttle manager won't

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know everything that's going on in AXAF, know everything that's going on in the payloads world. From their perspective, they might think this is the best for the center, but from an overall perspective, only Dr. Littles or Jack could make that determination of what impact if we go to do that if we go to do that this could have on these other programs. I don't think there's really any problem in getting a decision made when it's required at whatever level that needs.

K: You mentioned earlier that management today has a little more leeway than they used to.

L: I think they feel more comfortable in making a decision than they did in the past.

K: Why?

L: I just think that in years ago they felt that, no one wanted to make a decision. Everybody felt like that they needed to get clearance in order to make a decision. Now, they feel more like that I can make that decision and I'm willing to go ahead and do it. Jack has allowed them to do that. J. R. did the same.

K: Has that been positive?

L: I think that's a positive aspect. They take ownership of their whole program which is what Golden is trying to do now.

K: Do you have any anecdotes, some type of personal experience that would be interesting for the book? It can be just the day to day goings on of your work here at

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Marshall. We had people talk about, well one of the people who worked in Skylab and he didn't have anybody helping him and he had ran through so many pairs of shoes.

L: I don't know any of those problems. I can't think of anything right of the top of my head. The most memorable thing is, nothing that happened here, is how I got hired at the center. How's that?

K: That's fine.

L: I got hired at this center because I received a letter from NASA's Marshall personnel wishing me good look in my future job assignments and that I'd declined an offer.

K: You got a letter saying that you had declined an offer?

L: I got a letter in April or May '63 from personnel saying they regret that I declined my offer and wishing me good luck in the future.

K: How'd you respond?

L: I picked up the phone and called them collect and I told them that I had not heard anything from NASA, from Marshall since I had interviewed them in February or March of that year. I talked to someone in personnel and they said would you like to come and have a job interview. I came to Marshall in May, had an

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interview in the Saturn Systems Office with Mr. Haley and got a job offer graduation day when I graduated from college.

K: You just got this letter totally out of the blue?

L: Yes. Personnel came and interviewed at the center and we filled out a 1-7-1, a standard 1-7-1, and I think either provided it to him there or mailed it to them. The next thing I heard from NASA was about that I'd declined my offer. That's the thing that I'll always remember. That's a fact.

K: Some of the people that we've interviewed before, a lot of them have had rather unique circumstances about how they got here, but I think that one pretty much tops it - to be rejected even before you've been offered but then to be offered and hired.

L: Went to work two weeks after I graduated from college. Worked three months and went to the Army for two years. You've never heard that one before.

K: No, never have. I like that.

L: I had that one and the other one, well that's not anything dealing with work, but just an experience I had on a training activity I had.

K: Feel free to

L: This is another one that very few know about. I was in the MDP, Middle Management Development Program III, and we went to Guntersville for our

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training for a week, went on a Sunday and came back on Friday night. While I was there it rained and my room leaked and it leaked onto my clothes. That was the only place it leaked, not bad. At the same time at the Guntersville lodge, I saw a mouse run across the floor. I picked up a shoe and threw it at him. This was on training while I was down there. I missed him and then I made a mistake of going to sleep that night and I left a glass of water on the nightstand next to me. Sometime in the night I heard this slurping sound, and I didn't know what it was. I looked over and there this mouse was with his feet holding on to the back looking down in there drinking my water. I....

K: Tipped him over in there and drowned him?

L: No I picked up the telephone book, put it on top of it, walked to the front door of the hotel and mashed the telephone book down and left him there. He was gone when he got up the next morning, telephone book and all.

K: Everything was gone.

L: Those are the two biggest experiences I remember. They're not work related but they are a part of it. Have you ever heard that one before?

K: No. Never heard that one either.

L: I told them next day at the MDP and the lady still remembers my story.

K: I like those.

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L: I've been fortunate. I've been able to work at the Center since '63 except for about three years since 1963; been able to work in positions that have dealt strictly with program management, leading access with program management so that helps your working relationship. Helps you feel better too.

K: Would you have ever considered going to work for a contractor?

L: I never have thought anything about it. I always thought that when I leave NASA then I'll be through. I don't want to retire from NASA and start over again.

K: Overall you've had a very positive experience here at the center.

L: Yes, a positive experience in the center. Now, I've told you two stories that you'll never forget.

K: That's true. Is there anybody else that we might need to contact?

L: I don't know who you've contacted.

K: Just give me some names and I'll see if I remember them if I've done their interview. I've transcribed some of these and some of them I might remember.

L: Are you looking to go back the long way?

K: Well I guess for the next part of the book, probably in the post-Skylab, mid-70s.

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L: Are you interviewing NASA people as well and retirees? Then you've probably done George Hardy. He was a big shuttle guy. Leland Belew I know you've hit him. He's out at USBE, he's at?. Trying to think of who all the managers were then.

K: If there's some people even if you know [turn tape over 513].

L: ... some integration in the Skylab era.

K: Does he still work here?

L: Yes he works in NLS today, New Launch Systems. You've probably interviewed Porter Bridewell. He's been in various assignments all over the Center. He's had shuttle. He goes back a long way and is still on the Center.

K: I think we have the last one. The first one I'm not familiar with. We have our interviews by last names and I believe

L: I bet you've probably hit Porter. I don't know whether you've interviewed Halsy yet or not. He's our present comptroller.

K: We may not have.

L: Bill used to work on external tank and he worked in the Saturn days. Bob Pace, did they interview Bob?

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K: I think they did.

L: They probably did, more than likely you've got Pace. I couldn't believe that you don't already have most of them.

K: I'm almost sure we haven't done Frank Adams.

L: He worked in the integration and program control activities of Skylab. He's not in MLS. He worked on the SRB I believe. He's been around here for quite a few years. Some of the big activity we've done after Challenger is to the upper stages area. Sid Saucier or Parker Counts were in the upper stages right after Challenger. I was in that office, the upper stages area, but those guys had the first four of five launches of the shuttle after it started flying again after Challenger.

K: What were their names again?

L: Saucier, Sid Saucier.

K: How do you spell that?

L: Beats me. Sid - does that help you?

K: I've got that part down.

L: I can too and I know how his second name starts. S-a-u-c-i-e-r.

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K: Ok. What was the other?

L: Parker Counts. I'm sure you've hit McCoo. He's been around forever. You've got Counts. He's not hard to find. Those are some people. You've probably already interviewed most of those, I would think you have.

K: The principal investigator for the project will be writing the chapter on Space Station. If he needed to, would you talk with him because he could ask more specifics than I can. He could get to the nitty-gritty of all of it.

L: I may not know a lot of it because I was only there couple of years and I've been gone since then.

K: You worked in the Space Station from when to when?

L: (goes to check date on picture of 25KW power system) We used to have the 25KW power system is what McDonnell Douglas was developing for the Space Platform. You see it had the power system, thermal, and the payload. We used to call it the "Grasshopper." You see it had two little?, and we used to call it the "Grasshopper." I'm trying to remember. Let's see. I've been here since '90, April of '90. I was probably there in '87 or '86. I can't remember. I was in the 25KW platform from sometime in that time frame, but I can't recall. I'd have to go back and look. It's hard to remember.

K: Is '87 a good round year?

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L: I was in the Space Station Program office, if you want to know when and I know you'll have this down, I was in there when they definitized the first contract with Boeing. I don't remember the date, but I was there for that, '86 or '87 probably.

K: I'm sure he would know.

L: He'd know that.

K: Is there anything else you think we should know for the book?

L: I don't know what all you need to know. You know more about the Center know than we did. When you're working in a project, you get tied up in that project and sometimes you loose the perspective of the whole Center because you're worried about you're little project. You're not worried about what's happening in four other places. I've got a bigger perspective of the whole center in the last two years. Of course it helped me a lot when I spent two years on the Executive Staff. I got an overview of the Center, but you have a tendency to get into your program. Naturally you would and you think that's the most important going and it is to you but you can sometimes loose the big picture.

K: Have you thought of any projects, not necessarily the ones you've worked on but just projects here that have not been good for the Center?

L: No. I can't think of any. They're all a little different, but I don't know of any that weren't an added factor for the Center.

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K: Well, I certainly thank you for you time.

L: If you can figure out something in all of that, you're good. Good luck!

K: That's what the tape is for. You've been very helpful. Again thanks and we can turn this off now